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EXAMINER	
VERDIER, CHRISTOPHER M	

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3745	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/064,470	Applicant(s) COUTANDIN ET AL.	
	Examiner Christopher Verdier	Art Unit 3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-23 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-23 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 2-28-03 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 4.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "67" (paragraph 30), and "53" (paragraph 34). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: Appropriate correction is required.

On page 1, line 1, "SPECIFICATION" is superfluous and should be deleted.

In paragraph 6, line 2, "fulfil" should be changed to -- fulfill --.

In paragraph 46, last line, "slely" is ambiguous.

Examiner's Suggestions to Claim Language

The following are suggestions to improve the clarity and precision of the claims:

In claim 5, line 3, "of passage" may be deleted.

In claim 9, line 3, -- high -- may be inserted after "to" (first occurrence).

In claim 10, line 2, -- high -- may be inserted after "to".

In claim 10, lines 5 and 6, "duct" (all occurrences) may be changed to -- ducts --.

In claim 11, line 3, "of passage" may be deleted.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9-11, 14-15, 18, and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 9, last two lines, which recite that the axial row of intakes 38, 39 is provided at the leading edge 24 is inaccurate; the intakes are provided adjacent the leading edge, not at the leading edge, because the leading edge is the outermost portion 24 as seen in figure 1, for example. In claim 14, the recitation of the openings 64 communicating with the intake cavity 15 through the cooling ducts 33 is inaccurate; as disclosed in the specification and seen in figures 1 and 4, the openings 64 do not communicate with the intake cavity 15 through the cooling ducts 33, rather the openings 64 communicate with the rear cavity 16 through outlets 61 in the cooling ducts 33. Claim 21 is inaccurate because it depends on claim 20, which recites that the turbulence generator means comprises plural ribs. Claim 21 recites that the turbulence generator means comprises a number of incisions, which is a separate embodiment. The turbulence generator means is not both plural ribs and a number of incisions as is claimed. See the specification, paragraph 26.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4-5, 12, 16, and 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Pyne, Jr. 3,574,481. Note the double-wall blade for a turbine, the blade comprising a streamlined lateral wall 10 extending along an axis, surrounding said axis, and in turn comprising an inner wall 21 and an outer wall 14 facing and integral with each other; and channeling means (the interior of 21) for a cooling fluid, comprising an intake cavity 25 for intake of said cooling fluid into said blade and a number of cooling ducts (between adjacent elements 18) formed between said inner and said outer wall and tangentially to said inner and said outer wall; with the cooling ducts extending in respective directions crosswise to said axis and parallel to one another, each being airtight with respect to an adjacent duct, and have respective unnumbered intakes separate from one another and communicating with said intake cavity so as to each guide a relative flow of said cooling fluid, which does not mix with the flow in the adjacent duct. The channeling means additionally comprise means 13A, 14A, and 21A for regulation of the flow rate in order to diversify the flow rates of said flows from one another. See column 3, lines 1-15. The means for regulation of the flow rate comprise for each said intake, an unnumbered corresponding hole which has a cross-section of passage calibrated in order to put the corresponding said cooling duct into communication with said intake cavity. The streamlined lateral wall 10 can be accommodated in an annular duct of said turbine, and it inherently

comprises an unnumbered pair of radially spaced apart end walls which are disposed at the opposite axial ends of said streamlined lateral wall, transversely to said axis and in use can be connected to respective platforms which delimit said annular duct, with the channeling means comprising at least one opening 17 which is provided through at least one said end wall. See column 3, lines 37-42. The channeling means also comprise at least one passage 23 which is provided in a tail portion of said blade and opens along a trailing edge 12 of said streamlined lateral wall, said cooling ducts having respective unnumbered outlets which open into said passage. The channeling means also comprises turbulence generator means 13A, 14A, 21A which are disposed in the cooling ducts, in the form of a number of ribs which are supported by at least one said inner wall or outer wall and are transverse to a direction of advance of said flows. The recitation in claim 1, lines 1-2 of "particularly for aeronautical applications" is a recitation of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). Similarly, the recitations in claim 12 that the lateral wall "can be accommodated in an annular duct of said turbine", and that the end walls "in use can be connected to respective platforms which delimit said annular duct" are recitations of intended use.

Claims 1, 4-9, (as far as claim 9 is definite), 12, and 16-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki 4,697,985 (figure 1-3 and 6). Note the double-wall blade for a turbine, with the blade comprising a streamlined lateral wall 11 extending along an axis, surrounding said axis, and in turn comprising an inner wall 12 and an outer wall 11 facing and integral with each other; and channeling means 19/31a for a cooling fluid, comprising an intake cavity 18 for intake of said cooling fluid into said blade and a number of cooling ducts 14 formed between said inner and said outer wall and tangentially to said inner and said outer wall; characterized in that said cooling ducts extend in respective directions crosswise to said axis and parallel to one another, are each airtight with respect to an adjacent duct, and have respective unnumbered intakes separate from one another and communicating with said intake cavity so as to each guide a relative flow of said cooling fluid, which does not mix with the flow in the adjacent duct. The channeling means additionally comprises means 31a for regulation of the flow rate in order to diversify the flow rates of said flows from one another, with the means for regulation of the flow rate comprising for each said intake, a corresponding unnumbered hole which has a cross-section of passage calibrated in order to put the corresponding said cooling duct into communication with said intake cavity, with the means for regulation of the flow rate being interposed between said intake cavity and said intakes, and the means for regulation of the flow rate comprising an additional element (the unnumbered boss) which is connected integrally to said inner wall, with the holes being provided in the additional element. Concerning claim 8, the intake cavity may be considered as the interior of wall 12 and is an axial cavity which is delimited by said inner wall, with intakes 19 being provided through said inner wall along at least one axial row. The streamlined lateral wall has a leading edge 11a, a trailing edge 11b, and

a concave side which is subjected to pressure and a convex side which is subjected to low pressure which extends between said leading edge and the trailing edge, with the axial row of said intakes 19 being provided adjacent the leading edge. The streamlined lateral wall can be accommodated in an annular duct of said turbine, and in it inherently comprises a pair of end walls which are disposed at the opposite axial ends of said streamlined lateral wall, transversely to said axis and in use can be connected to respective platforms which delimit said annular duct, with the channeling means inherently comprising at least one opening which is provided through at least one said end wall. The channeling means also comprise at least one passage 16 which is provided in a tail portion of said blade and opens along a trailing edge 11b of said streamlined lateral wall, with the cooling ducts 14 having unnumbered respective outlets which open into said passage. As seen in figure 6, said passage is delimited by said outer wall and accommodates a number of heat exchange elements 35 which project from said outer wall. The recitation in claim 1, lines 1-2 of "particularly for aeronautical applications" is a recitation of intended use as set forth above. The recitation in claim 12 that the lateral wall "can be accommodated in an annular duct of said turbine", and that the end walls "in use can be connected to respective platforms which delimit said annular duct" are recitations of intended use.

Claims 1-3, 12, and 16 are also rejected under 35 U.S.C. 102(b) as being anticipated by Brockmann 3,373,970. Note the double-wall blade for a turbine, the blade comprising a streamlined lateral wall 10 extending along an axis, surrounding said axis, and in turn comprising an inner wall 12 and an outer wall 10 facing and integral with each other; and channeling means (the interior of 12) for a cooling fluid, comprising an intake cavity near 18 for intake of said

cooling fluid into said blade and a number of cooling ducts (between adjacent elements 11) formed between said inner and said outer wall and tangentially to said inner and said outer wall; with the cooling ducts extending in respective directions crosswise to said axis and parallel to one another, each being airtight with respect to an adjacent duct, and having respective unnumbered intakes separate from one another and communicating with said intake cavity so as to each guide a relative flow of said cooling fluid, which does not mix with the flow in the adjacent duct. The cooling ducts are separated and made airtight with respect to one another by baffles 11 formed in one piece with said inner and said outer wall. See column 4, lines 6-15. The baffles are disposed on respective planes at right-angles to said axis. The streamlined lateral wall 10 can be accommodated in an annular duct of said turbine, and it comprises a pair radially spaced apart end walls 14 which are disposed at the opposite axial ends of said streamlined lateral wall, transversely to said axis and in use can be connected to respective platforms which delimit said annular duct, with the channeling means comprising at least one unnumbered opening which is provided through at least one said end wall. The channeling means also comprises at least one passage 20-22 which is provided in a tail portion of said blade and opens along a trailing edge 19 of said streamlined lateral wall, said cooling ducts having respective unnumbered outlets which open into said passage. The recitation in claim 1, lines 1-2 of "particularly for aeronautical applications" is a recitation of intended use as set forth above. The recitation in claim 12 that the lateral wall "can be accommodated in an annular duct of said turbine", and that the end walls "in use can be connected to respective platforms which delimit said annular duct" are recitations of intended use.

Claims 1, 12, and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Morrison 6,709,230 (figures 2-4). Note the double-wall blade for a turbine, the blade comprising a streamlined lateral wall 20 extending along an axis, surrounding said axis, and in turn comprising an inner wall 28 and an outer wall 24 facing and integral with each other; and channeling means (the unnumbered trailing edge outlet near 39) for a cooling fluid, comprising an intake cavity near 36 for intake of said cooling fluid into said blade and a number of cooling ducts 30 formed between said inner and said outer wall and tangentially to said inner and said outer wall; with the cooling ducts extending in respective directions crosswise to said axis and parallel to one another, each being airtight with respect to an adjacent duct, and having respective unnumbered intakes near 28 separate from one another and communicating with said intake cavity so as to each guide a relative flow of said cooling fluid, which does not mix with the flow in the adjacent duct. The streamlined lateral wall 20 can be accommodated in an annular duct of said turbine, and it inherently comprises a pair of radially spaced apart end walls which are disposed at the opposite axial ends of said streamlined lateral wall, transversely to said axis and in use can be connected to respective platforms which delimit said annular duct, with the channeling means comprising at least one unnumbered opening connected to 36 which is provided through at least one said end wall. The channeling means also comprises an unnumbered passage which is provided in a tail portion 39 of said blade and opens along a trailing edge of said streamlined lateral wall, said cooling ducts having respective unnumbered outlets which open into said passage. The recitation in claim 1, lines 1-2 of "particularly for aeronautical applications" is a recitation of intended use as set forth above. The recitation in claim 12 that the lateral wall "can be accommodated in an annular duct of said turbine", and that

the end walls "in use can be connected to respective platforms which delimit said annular duct" are recitations of intended use.

Claims 1, 12-13, and 16-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Ito 4,946,346 (figures 6-8). Note the double-wall blade for a turbine, the blade comprising a streamlined lateral wall near 1 extending along an axis, surrounding said axis, and in turn comprising an inner wall 5 and an outer wall 1 facing and integral with each other; and channeling means (the unnumbered trailing edge outlet and/or the interior of the inner wall 5) for a cooling fluid, comprising an intake cavity 4 for intake of said cooling fluid into said blade and a number of cooling ducts 11 formed between said inner and said outer wall and tangentially to said inner and said outer wall; with the cooling ducts extending in respective directions crosswise to said axis and parallel to one another, each being airtight with respect to an adjacent duct, and having respective unnumbered intakes separate from one another and communicating with said intake cavity so as to each guide a relative flow of said cooling fluid, which does not mix with the flow in the adjacent duct. The streamlined lateral wall can be accommodated in an annular duct of said turbine, and it comprises a pair of radially spaced apart end walls 2, 3 which are disposed at the opposite axial ends of said streamlined lateral wall, transversely to said axis and in use can be connected to respective platforms which delimit said annular duct, with the channeling means comprising an unnumbered opening in end wall 2, openings 7 in the end wall 2, and openings 14 in the end wall 3, which are provided through at least one said end wall. The channeling means also comprises an unnumbered passage which is provided in a tail portion near 12 of said blade and opens along a trailing edge of said streamlined lateral wall, said cooling

ducts having respective unnumbered outlets which open into said passage. The passage is delimited by said outer wall and accommodates a number of heat exchange elements 12 which project from said outer wall. The recitation in claim 1, lines 1-2 of "particularly for aeronautical applications" is a recitation of intended use as set forth above. The recitation in claim 12 that the lateral wall "can be accommodated in an annular duct of said turbine", and that the end walls "in use can be connected to respective platforms which delimit said annular duct" are recitations of intended use.

Claims 1, 4-6, and 8-13 (as far as claims 9-11 are definite), are rejected under 35 U.S.C. 102(b) as being anticipated by Moore 3,246,469 (figures 1-3). Note the double-wall blade for a turbine, with the blade comprising a streamlined lateral wall 2/8 extending along an axis, surrounding said axis, and in turn comprising an inner wall 16 and an outer wall 6 facing and integral with each other; and channeling means (the interior of insert D1) for a cooling fluid, comprising an intake cavity near 22 for intake of said cooling fluid into said blade and a number of cooling ducts 12 formed between said inner and said outer wall and tangentially to said inner and said outer wall; characterized in that said cooling ducts extend in respective directions crosswise to said axis and parallel to one another, are each airtight with respect to an adjacent duct, and have respective intakes 18, 20 separate from one another and communicating with said intake cavity so as to each guide a relative flow of said cooling fluid, which does not mix with the flow in the adjacent duct. The channeling means additionally comprise means for regulation of the flow rate 18, 20 in order to diversify the flow rates of said flows from one another, with the means for regulation of the flow rate comprising for each said intake, a corresponding hole

18, 20 which has a cross-section of passage calibrated in order to put the corresponding said cooling duct into communication with said intake cavity. The means for regulation of the flow rate are interposed between said intake cavity and said intakes. The intake cavity is an axial cavity which is delimited by said inner wall, said intakes being provided through said inner wall along at least one axial row, with the streamlined lateral wall having a leading edge near 6, a trailing edge near 28, and a side 2 which is subjected to pressure and a side 8 which is subjected to low pressure which extend between said leading edge and the trailing edge, with the axial row of said intakes being provided adjacent said leading edge. The cooling ducts comprise first ducts provided along said side which is subjected to pressure and second ducts provided along said side which is subjected to low pressure, and means for separation 22 being provided between said first duct and second duct in order to define first intakes in said first duct and second intakes in said second duct. The means for regulation of the flow rate comprise first and second holes 18, 20 which have a calibrated cross- section of passage and are each associated with a respective corresponding said first intake and with a corresponding said second intake. The streamlined lateral wall can be accommodated in an annular duct of said turbine, and it inherently comprises a pair of end walls which are disposed at the opposite axial ends of said streamlined lateral wall, transversely to said axis and in use can be connected to respective platforms which delimit said annular duct, with said channeling means comprising at least one opening which is provided through at least one said end wall. The channeling means comprise a number of said openings for each said end wall.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 19-21 (as far as claim 21 is definite) are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki 4,697,985 in view of Okpara 5,468,125. Suzuki discloses a double-wall blade substantially as claimed as set forth above, but does not disclose channeling means in the form turbulence generator means disposed in the cooling ducts 14, with the turbulence generator means comprising a number of ribs which are supported by at least one of the inner wall or the outer wall and are transverse to a direction of advance of the flows, with the turbulence generator means comprising a number of incisions which are provided in at least one of the inner wall or outer wall and are transverse to a direction of advance of the flows.

Okpara shows a cooled turbine blade 10 having an interior which is cooled via a cooling stream in a flow direction from the leading edge 26 to the trailing edge 28, with the interior having turbulence generator means 52 disposed in the blade interior ducts (unnumbered), with the turbulence generator means comprising a number of ribs 52 which are supported by an outer wall 38, 40 and are transverse to a direction of advance of the cooling stream flows, with the turbulence generator means 52 also comprising a number of incisions (located between the ribs 52) which are provided in the outer wall and are transverse to a direction of advance of the flows, for the purpose of providing improved heat transfer and lower blade cooling requirements.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the cooling ducts 14 of the turbine blade of Suzuki with turbulence generator means disposed in the cooling ducts 14, with the turbulence generator means comprising a number of ribs which are supported by the outer wall and are transverse to a direction of advance of the flows, with the turbulence generator means comprising a number of incisions which are provided in the outer wall and are transverse to a direction of advance of the flows, as taught by Okpara, for the purpose of providing improved heat transfer and lower blade cooling requirements.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki 4,697,985 in view of Japanese Patent 55-104,506. Suzuki discloses a double-wall blade substantially as claimed as set forth above, including an inner wall 12 and an outer wall 11 separated from one

another by a distance, but does not disclose that the separation distance is equal to the thickness of at least one of said inner wall or outer wall.

Japanese Patent 55-104,506 (figures 2-4) shows a cooled turbine blade having an inner wall 17A/38A and an outer wall 12/31 separated from one another by a distance that is equal to the thickness of the inner wall and the outer wall, for the purpose of providing adequate cooling of the blade and adequate thicknesses for reduced weight.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the blade of Suzuki such that the separation distance between the inner wall and the outer wall is equal to the thickness of the inner wall and the outer wall, as taught by Japanese Patent 55-104,506, for the purpose of providing adequate cooling of the blade and adequate thicknesses for reduced weight.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over either (Suzuki 4,697,985, Pyne 3,574,481, or Brockmann 3,373,970) in view of Weiler 4,314,791. Suzuki, Pyne, or Brockmann disclose double-walled blades substantially as claimed as set forth above, but do not disclose that the blade comprises pivoting portions which are disposed on opposite axial parts of said streamlined lateral wall in order to rotate in use around the axis of the streamlined lateral wall.

Weiler (figure 1) shows a variable stator vane 1 that is cooled and that rotates around an axis of the stator vane, via pivoting portions 6, 7, for the purpose of providing adjustable flow to a turbine 36.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the blade of either Suzuki, Pyne, or Brockmann such that the blade comprises pivoting portions which are disposed on opposite axial parts of said streamlined lateral wall in order to rotate in use around the axis of the streamlined lateral wall, as taught by Weiler, for the purpose of providing adjustable flow to the turbine.

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Landis, Tuley '851 and '852, and Schipani '297 are cited to show variable stator vanes having cooling passages.

Schipani '231 is cited to show variable stator vanes in a cooling duct.

Ohtomo, Lee, and Japanese Patent 61-149,503 are cited to show turbine blades having ribs therein.

Examiner's Comment

No meaningful patentability determination may be made at this time with regard to claims 14-15 and 18 due to the indefinite nature and inaccuracy of these claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (703)-308-2638. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (703) 308-1044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.V.
March 25, 2004

Christopher Verdier
Primary Examiner
Art Unit 3745